be consumed either aerobically or anaerobically. Stated in the briefest possible way, the very complicated and ingenious experiments described seem to indicate that aerobic utilization of carbohydrate (oxidation) predominates in normal resting tissues, while the opposite is true of malignant tissues, where fermentation predominates by an overwhelming ratio.

This observation leads to two very interesting hypotheses. In the first hypothesis—the theory of the origin of malignant growth—Warburg "regards a tissue as a community of cells having wide individual differences in their respiratory (oxidative) and fermentative activities. Thus some few cells of a normal tissue will have all the metabolic characteristics of neoplastic cells. In the economy of the whole tissue their high fermentative activity will make no significant contribution owing to their very limited number. Should, however, a local condition of chronic anoxemia occur, the majority of the cells will be killed, since they will be unable to respire, but the few cells which possess sufficient fermentative activity . . . proliferate, and from them will develop a malignant growth. Thus cancer cells are regarded as present in all normal tissues, and the exciting cause for their proliferation is held to be a sustained lack of oxygen. 'Irritation' becomes 'anoxemia.' This highly interesting view remains, at present, without direct evidence in support or denial."

In the second hypothesis, a novel method of treatment is suggested. It appears that tumor cells are, so to speak, "facultative anaerobes." In the presence of an abundant supply of glucose, fermentation will predominate. In the absence of glucose or in the event of a limited supply, oxidation will be carried on to an extent sufficient to insure survival. But deprived of both oxygen and glucose, tumor cells will not survive. Tumor-bearing rats were kept for from four to forty hours in an atmosphere containing only 5 per cent oxygen. After even the shorter periods, the great majority of the tumor cells had been killed. The tumor was unable to compensate for lack of oxygen by increased sugar supply owing to the relative constancy of the systemic blood-sugar concentration. The expedient is suggested of giving insulin to reduce below normal the blood-sugar at the same time that the oxygen supply is cut down. Possibly the gentleman in Kansas City who is reputed to treat patients in a tank in which the oxygen supply is much increased by raising the air pressure, might be more nearly in accord with experimental evidence if he would reverse his process, reducing instead of raising oxygen pressure and perhaps administering insulin at the same time.

Cannan points out that there are many facts to be explained and many observations to be made before Warburg's theories can be accepted as facts; but that Warburg, and those who have worked along similar lines have opened up an avenue of biological research which will scarcely be denied a rich reward.

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Neuropsychiatry

Emotional Factors in Disease—At the Washington meeting of the American Medical Association several papers on "Psychic and Emotional Factors in Disease" were read in the medical section, indicating that the internists are realizing the need of a practical medical psychology.

That the symptoms, course and prognosis of disease are profoundly influenced by mental factors is an observation as old as medicine, but not always appreciated.

Stumbling blocks in the practice of medicine are in unintelligent patients, lack of understanding, hence poor cooperation, while in both intelligent and unintelligent people the disease picture is greatly influenced by intellectual and emotional factors.

The emotional (or affective) condition exerts in disease an influence far in excess of any intellectual factor.

While we have no exact knowledge as to the cause of the emotions which are experienced subjectively only, we feel pretty sure that they are connected with physical processes and that differences in affectivity in different people depend upon a difference in constitutional equipment.

Medical psychology is paying more and more attention to constitution, physical and mental, and its effect upon reaction to morbid influences.

We know that the affective condition exerts a profound influence upon attitude, expression and speech, as well as upon the cardiovascular and glandular systems and upon metabolism, while conversely the emotional state is strongly affected by disease, as shown in the anxiety of heart disease, depression and irritability in digestive troubles, euphoria in phthisis, etc.

On the psychological side, we are convinced of the importance of the emotional condition existing at the time in forming, fixing and linking together our conceptions and in determining their relation to the field of consciousness.

The facilitating and inhibiting influence of the emotions upon the content of consciousness may lead to certain elements of this content being bound together through a corresponding emotional tone into what has been called a "complex." Such a complex even if it is not actually in the field of consciousness, nevertheless remains a permanent unit in the psychic dynamics and may be awakened and brought again into consciousness by anything which arouses the emotional tone characteristic of it.

Whether or not we accept Freud's theory of an "unconscious" sphere wherein are contained certain suppressed mental elements and complexes, which though they cannot be reproduced voluntarily, nevertheless profoundly influence the psyche

and also can translate themselves into physical symptoms ("conversion hysteria"), is immaterial for our present purpose.

We know that in a sick person an injudicious communication or any circumstance producing a painful emotional state may bring into consciousness a train of ideas which can unfavorably influence the progress of the case. Also we are aware that violent emotions as rage and fear may cause a sudden paralysis of a damaged heart; a rise of blood pressure which may produce a fatal apoplexy in an arteriosclerotic; inhibition of gastro-intestinal secretions; increased peristalsis, which may manifest itself as diarrhea; involuntary discharge of urine and feces; and exceptionally an intestinal spasm which may be severe enough to suggest an organic obstruction which must be attacked surgically. It is also conceivable that chronic and recurrent emotional disturbances may set up vicious circles which in time result in actual organic change.

Therefore the physician should not only study the physical constitution of his patient, but should attempt also some estimate of his probable emotional reactivity.

To this end a knowledge of his past activities, his family, social and business relationships, may well contribute in deciding not only whether he has sufficient intelligence and good will to cooperate, but also in estimating how he can best be managed, what should be avoided, etc.

The proper control of the emotions cannot but improve the prognosis.

This is to be attempted not only through dietetic, hygienic, physical and medicinal measures, but also by tactful avoidance, kindly reassurance, and throughout everything an atmosphere of favorable suggestion.

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Obstetrics

Heart Disease in Pregnancy—Heart disease is and always has been a serious malady; taking many lives and crippling others. In the United States statistics indicate an increase in mortality rate in cardiac diseases. It may almost be said that in late years the general public has developed a cardiophobia. It is therefore pleasing to find in Doctor Cabot's book, "Facts on the Heart," the following statement: "The first, and in some ways the most important point of all is to know most 'heart disease' is imaginary."

In contrast to this statement is the quotation from "The Beloved Physician" by Wilson, a book which gives the life history of Dr. James Mackenzie, the great heart specialist of London: "The girl was dead. She died of sudden heart failure. Her child remained unborn in her womb. James Mackenzie, as he turned to break the news of her death to her husband, tasted the bitterest anguish which any doctor can experience."

"One hour later in his consulting room, as he paced the floor in the deep silence of the small hours, the full horror of this calamity was revealed to him. The question sprang to his lips, would this death have occurred if I had a better knowledge of heart afflictions?" It was thus Mackenzie became a heart specialist.

As obstetricians, we cannot all become heart specialists, but we should ever be ready to recognize danger signals. A. Leyland Robinson, M. D., London, in the *Lancet* of January 22, 1927, suggests the following treatment for cardiac complications of pregnancy:

"(*a*) *Without Heart Failure*—After full investigation of the heart and full allowance for the various cardiac loads, the pregnancy may be permitted to continue so long as the cardiologist estimates the reserve as satisfactory.

"(*b*) *With Heart Failure*—Unfortunately, a patient may become pregnant when her heart is imperfectly compensated, or she may develop heart failure before seeking advice, or even when under treatment. Under these circumstances, the obstetrician is often advised to terminate the pregnancy forthwith.

"On the contrary, every effort must be made to restore the compensation of the heart before the termination of the pregnancy is decided upon.

"(*c*) *Control of Repeated Pregnancies*—Although it may be fairly advanced that the first pregnancy and labor produce the maximum muscular strain, and that subsequent labors are frequently short and easy, yet repeated pregnancies should be forbidden to all patients who have any heart lesion. In any event, adequate spacing of the children is essential in order that the heart may be given ample time to recover from the strain of one pregnancy before being exposed to the effects of another.

"(*d*) *Mode of Delivery*—If the cardiac reserve is sufficient to enable the patient to play games and lead an active life when not pregnant—*i. e.*, almost perfect—normal delivery at full term may be safely allowed; at the same time, the induction of premature labor and the use of forceps are always useful procedures, as they mean less work for the expelling muscles and, consequently, less strain on the heart. For cases in which the cardiac reserve is seriously reduced cesarean section is probably the least risky mode of delivery. This operation has many advantages."

In our own practice we aim to follow a program similar to the above, and we believe the obstetrician should also have, associated in some cases, a skilled cardiologist.

Recently a multipara came under our observation—eight months pregnant, mitral lesion, pulse 100 to 140, B. P. 135.80, dyspnea, orthopnea, slight edema of ankles, some passive congestion of lungs with cough. Under treatment with close observation, rest in bed, ice bag to heart and digafolin, the heart showed some compensation. Patient went into labor after a four weeks treatment. Ethylene was given and forceps applied. After a short labor, and with treatment continued, the patient went home in two weeks, with greater compensation. The first thought was cesarian section, but with the patient under observation,